



## Behavior-dependent senescence in pelagic copepods

Kjørboe, Thomas; Ceballos, Sara; Thygesen, Uffe Høgsbro

*Published in:*  
Ecological Society of America. Bulletin (Print)

*Link to article, DOI:*  
[10.1890/0012-9623-96.4.651](https://doi.org/10.1890/0012-9623-96.4.651)

*Publication date:*  
2015

*Document Version*  
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

*Citation (APA):*  
Kjørboe, T., Ceballos, S., & Thygesen, U. H. (2015). Behavior-dependent senescence in pelagic copepods. *Ecological Society of America. Bulletin (Print)*, 96(4), 651-653. <https://doi.org/10.1890/0012-9623-96.4.651>

---

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

---

# BEHAVIOR-DEPENDENT SENESCENCE IN PELAGIC COPEPODS

Thomas Kiørboe, Sara Ceballos and Uffe H. Thygesen

Copepods have diverse behaviors that expose different species very differently to predation risk. In predator-free laboratory environments, we found that the average adult longevity of small copepods varied 10-fold between species and sexes, and this variation was significantly related to the extent of risk-taking behavior. For example, ambush-feeding copepods have a low risk of encountering a predator compared to copepods that cruise rapidly in search for food, and the former live very much longer than the latter, even in the absence of predators, and also have much lower egg production rates. These results are consistent with the idea that species adapted to low external mortality invest in maintenance, and hence, have a long life, while high external mortality may rather lead to high investment in reproduction.

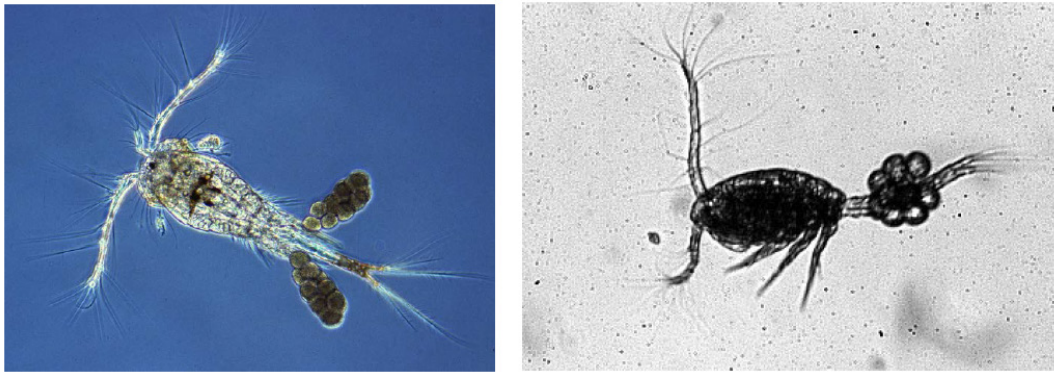


Photo 1. *Oithona davisae* (0.3 mm) is an egg-carrying ambush-feeding copepod; the right panel show the initiation of an attack on a dinoflagellate. The females have an average adult life span of 4 months in a protected lab environment, the longest recorded among the species examined. Photos by A. Calbet (left panel) and T.Kjørboe (right panel).



Photo 2. *Centropages typicus* (1 mm) is a cruising copepod with a high-risk feeding behavior. The males swim a little fast to find females, and hence have a somewhat higher risk of encountering a predator. The average adult longevity is 3 weeks for the female and 2 weeks for the male. Photo by E. Selander.

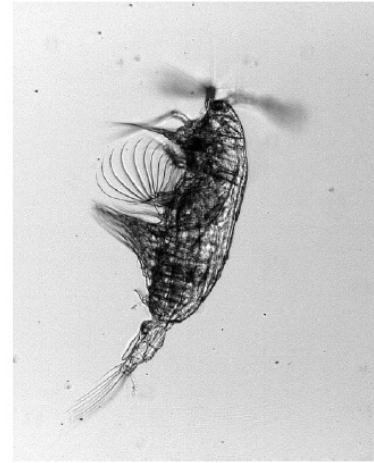
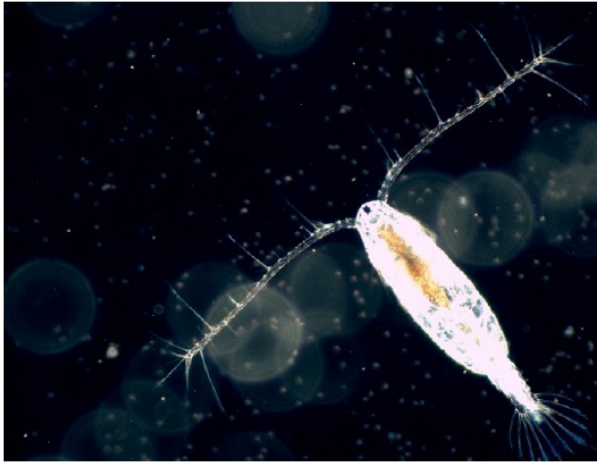


Photo 3. *Acartia tonsa* (0.8 mm) generates a feeding current; the right panel shows the opening of the feeding appendages that generates the feeding current. Mate finding in this species is symmetrical between the genders, and males and females have very similar average adult longevity in a protected laboratory environment. Photos by T. Kiørboe (left panel) and J. Xu (right panel).

These photographs illustrate the article “Interrelations between senescence, life history traits, and behavior in planktonic copepods,” by Thomas Kiørboe, Sara Ceballos, and Uffe H. Thygesen, published in *Ecology* 96(5):2225–2235. <http://dx.doi.org/10.1890/14-2205.1>